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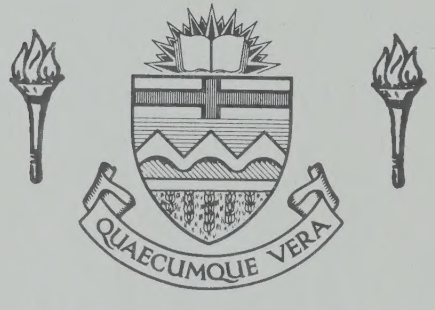

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THE UNIVERSITY OF ALBERTA

COUNSELING THROUGH THE MEDIA:
AN APPROACH TO SMOKING CESSATION

by

ELAINE MORRISON

A THESIS

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled Counseling Through the Media: An Approach to Smoking Cessation, submitted by Elaine Morrison in partial fulfillment of the requirements for the degree of Master of Education in Counseling Psychology.

Date: April 1/88

Dedication

To my father, who always inspired and encouraged
me to be the best that I could be, and
To Kathryn, my daughter

ABSTRACT

In the fall of 1985 a special project was implemented by a psychiatrist and psychologist to examine the effect of a mass media approach to smoking cessation. The intervention consisted of five 90-minute radio programs conducted on five consecutive days. Program content emphasized information about the physiological and psychological effects of smoking and methods of quitting and maintaining abstinence. Each day a different facet of the topic was presented by the host and invited guest, following which listeners phoned in to talk about their own ideas and feelings about the problem. In addition a public meeting was held to promote community interest in the topic and support for those quitting. Approximately 500 people attended this event.

150 volunteer subjects returned a questionnaire three months after the program pertaining to smoking behaviour over 3 time intervals, and a telephone interview was completed on 122 subjects at 18 months follow-up. The following results were reported:

1) a 34% quit rate at 3 months follow-up;
2) a significant reduction in weekly smoking in the three months following the program;
3) other changes in health-related variables;

4) a 36% quit rate at 18 months follow-up; and

5) a significant reduction in weekly smoking at 18 months.

The results were comparable or better than methods requiring attendance at a course and had the advantage of greater accessibility and broader impact. Thus the study showed how a professionally lead, radio-assisted, educational campaign, utilizing social support and interactive processes, can be used successfully to bring about smoking reduction.

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To Roger and my mother, for your constant support and patience, a very special and loving thanks is extended.

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Chapter I

Introduction

In October, 1985, a special health promotion program was implemented to help smokers in the city of Edmonton quit smoking. Interest in experimental initiatives of this sort grew from the success of programs in Finland and the United States and in recognition of the urgent need for large scale interventions to reduce the incidence of smoking in Edmonton. Thus, this survey project was designed to assess the efficacy of a media-assisted approach to smoking cessation. The 5-day multi-component program was delivered by a psychiatrist and a psychologist and their invited guest experts over a major local radio station. A large public rally was also conducted to stimulate community interest and the development of support system networks. The major objectives of the program were a) to raise the level of community support for smokers who want to quit, and b) to help smokers learn how to manage their own smoking problems.

Background To The Problem

Recently there has been a great deal of research interest in the use of the mass media as a mechanism to influence health knowledge, attitudes and behaviour

(Atkin, 1981a). Typically health professionals use the media to focus on lifestyle issues - smoking, drug and alcohol abuse, nutrition, lack of regular exercise, accident prevention, sexually transmitted disease, immunization, dental health, cardiovasular health, mental health - which have been identified as largely under the control of individuals and contributing to avoidable causes of serious illness and early death.

Using the media to promote life style habits in the general public is not a new idea. In Canada the Federal Government's nation wide Participaction Program has been highly successful in influencing Canadians to live a healthier life. At the provincial level, the Alberta Government's Alcohol and Drug Abuse Commission (AADAC) directs a campaign of anti-abuse messages at young adults over radio and television. While the impact of media health campaigns has been varied, one local survey, the 1979 Edmonton Area Study, found that over 40% of respondents were influenced by the media to live a healthier life style (Northcott and Jarvis, 1981).

Multi-media programs featuring mental health professionals have become increasingly popular. Typically, professionals attempt to persuade individuals to accept greater responsibility for maintaining their own health by providing information, motivating them to reduce risks, or teaching skills that enable them to lead

healthier life styles (McGuire, 1984). A brief survey of the literature reveals several innovative programs. An extensive smoking cessation course was undertaken in Finland by American and Finnish psychologists over television in 1978. One year later over 10,000 adult smokers attributed their success in stopping smoking to the television broadcast (McAlister, 1981). Another large scale project was carried out in Kansas City after a disaster in which an estimated 5,000 persons were at risk to suffer psychological consequences. A successful media campaign was launched to provide mental health related education and support for those affected by the disaster (Gist and Stolz, 1982). Another study (the Stanford Heart Disease Field Project), along with the North Karelia program in Finland, have become models of community health promotion and are described more fully in Chapter II.

Nature of the Problem

Personal lifestyles and behaviors are responsible for a large share of unnecessary illness and disability in industrialized nations (US D.H.E.W., 1979). Thus, health promotion depends to a great extent on the ability to positively influence health related behavior of individuals. Yet, convincing individuals to change lifestyle habits is not easy, especially when negative

health consequences of high risk behaviors and the benefits of change are not immediately apparent (Haggerty, 1977). While much psychological research has been done regarding the nature of change in individuals using Bandura's (1971) principles of social learning theory, the real challenge facing health educators is to apply such knowledge to relevant problems at a community level to create change on a large scale (Puska et al, 1985). This is a task for mass communications.

Introduction to The Smoking Problem

Since the release of the first U.S. Surgeon General's Report on Smoking and Health in 1964, smoking has been widely recognized as the "chief, single avoidable cause of death in our society and the most important issue of our time." (US D.H.H.S., 1982) The accumulated knowledge gained from countless scientific studies over the last two decades, the desire of many smokers to quit and a growing anti-smoking militancy amongst the general public, has created a demand for smoking cessation interventions. Yet despite years of intensive efforts, what is known about effective prevention and intervention "... is still pitiably small." (Yankauer, 1981, p.8).

Justification for the Study

The last 30 years of public education and efforts to

help smokers quit has brought to light the following realizations. First, smoking cessation programs have had only modest success, with long term cessation rates averaging 20-30% at best (Kaplan, 1984). This is not much better than the rate of spontaneous quitting, that is quitting without the help of any program. Secondly, the majority of smokers prefer to quit on their own, and will not seek individual therapy or attend group clinic programs (Oskamp, 1984). Thus health educators are challenged to move out of traditional health care settings into the smoker's regular environment, using media systems to which he/she is regularly exposed to apply health knowledge (Okene, 1984). Thirdly, although public education has been extensive and varied, it is still inadequate to meet the problem, especially in relaying information and in teaching the skills of quitting and managing relapse (Farquhar et al, 1981). A report by the Federal Trade Commission delivered to the 4th World Conference on Smoking and Health in 1980 found that approximately 50% of the population still did not know about the major health risks associated with smoking and with smoking during pregnancy (Farquhar et al, 1981). Fourth, research devoted to the field testing of smoking prevention and cessation methods that may prove generalizable has been inadequate (Farquhar et al, 1981). Finally, the extent of the smoking problem in

industrialized nations is such that small-scale, individual interventions can not significantly diminish the problem. This has lead some researchers to call for multi-faceted, large scale community interventions which provide people with necessary information, skills and support to control the behavior they are trying to change. Thus a combination of mass communication techniques and psychological principles are required, but little is known about how to do this effectively (Puska et al, 1985).

Purpose and Design

While the potential for experimental initiatives in media counselling to provide high quality, highly acceptable, effective health education is great, the field has not been fully explored. In particular an urgent need for effective techniques to help people stop smoking has been identified. The present study is a survey of the public response to a 5-day, multi-component smoking cessation program using radio and examines the effectiveness of a "grass roots" approach to quitting in a non-clinical, unselected population. Pre-test measures of smoking are compared with self-report post-test measures at three months and eighteen months follow-up. Participants ratings of the helpfulness of various components of the program and responses to open-ended

questions are evaluated. Success criteria are not specified although it is expected that participation in the program results in a reduction in the incidence of smoking in participants.

Research Questions

Specific research concerns were related to the following questions:

1. What are the characteristics of those who participated in the study?
2. Will promotion of the program through a local newspaper and over the radio spark interest within the general population to the extent that people will attend a public meeting on the topic?
3. How will participants rate the helpfulness of the different components of the five day program?
4. What is the program effect, if any, on subjects' smoking and other related health variables?

Definition of Terms

The following operational definitions were used to facilitate the understanding of terminology used in this and similar, previous research.

1. stop smoking campaign - refers to the collective,

coordinated activities of the researchers and their guests whose objective it was to encourage participants to quit or reduce smoking (Warner, 1977, p.645).

2. health promotion - refers to those activities directed towards communities and individuals to promote life-styles that maintain and enhance health (Kaplan, 1984, p.755).
3. health education - what the health professional does directly to educate people to lead healthy lives (Haggerty, 1977, p.284).
4. communication - the process through which human beings share social and cultural interactions, information, knowledge, experience, ideas, skills, motivations and aspirations; an end result may be attitudinal or behavioural change (Tuluhungwa, 1981, p.30).

Overview of the Study

In Chapter I, the topic of the study is introduced and its purpose and importance in the area of media counseling is established. The second chapter provides an overview of some recent literature in two major areas: smoking (including its health hazards, incidence, and interventions), and mass communications. Chapter III

contains a description of the design of the study, the instruments used, and the methods and procedures for data collection and analysis. The findings are presented in Chapter IV. Finally, a discussion of the results and some recommendations for further study are presented in Chapter V.

Chapter II

Some Related Literature

The purpose of this Chapter is to provide a general background to the subject of smoking, including prior research on its health hazards, incidence, and interventions. The contributions of several theories as they relate to cessation and long-term maintenance are examined. The field of health promotion utilizing mass media communications is also briefly described.

Recent Evidence About Smoking

Since the release of the U.S. Surgeon General's report on smoking in 1964, the health hazards attributed to chronic tobacco use have been widely documented (US Dept. of Health, Education, and Welfare, Public Health Service, 1964, 1967, 1968, 1972, 1973, 1975, 1979; US Dept. of Health and Human Services, 1980, 1981, 1982, 1984, 1985, 1986). Smoking is a causal factor in cardiovascular disease, pulmonary disease and cancer which account for the leading causes of mortality in industrialized nations. In Canada, tobacco is associated with approximately 30,000 premature deaths per year, or

approximately one in five deaths among people fifteen years and older (Charbonneau, 1985). The estimated number of Canadians suffering chronic, debilitating diseases caused by smoking is much higher. The health risks associated with smoking are especially high for some groups. For example, for women who both smoke and use oral contraceptives, the risk of cardiovascular disease is greatly increased and maternal smoking during pregnancy has been associated with premature births, low birth weight, fetal death, and other pregnancy complications. Other high risk groups are found in industrial settings where exposure to tobacco smoke and such toxic agents as coal, asbestos, textiles and chemicals greatly increases the health hazards for workers (Oscamp, 1984).

Research since 1981 demonstrates that the health of non-smokers is also affected by tobacco smoke (Charbonneau, 1985). Exposure to side-stream or second hand smoke has been associated with a variety of complaints from non-smokers, including eye irritation, nasal congestion, headache, hoarseness, sore throat, nausea, dizziness, and lack of appetite. The effects of second hand smoke may be quite severe for pregnant women and for people with existing heart and lung conditions. Moreover, the incidence of bronchitis, pneumonia, and other respiratory illness is greater in children whose parents smoke (MacDonald and Kurji, 1986).

A link between smoking and short term disability (ie. reduced work capacity for most or all of the day) has also been documented. The results of the 1978-79 Canada Health Survey show that current and former smokers have greater short-term disability rates than do people who have never smoked. Moreover, disability due to smoking increases with age, probably due to longer exposure to the harmful effects of tobacco. Such results support the notion that smokers as a group are less healthy than non-smokers (Rogers, 1985).

While so much has now been documented about the risks associated with tobacco smoke for both smokers and non-smokers alike, the benefits of quitting are also known. For those who successfully 'kick the habit', the risk of death from heart disease is rapidly reduced by "...one half that of those who continue to smoke, provided they quit before reaching age 65" (Kannel and Schatzkin, 1983, p.310). Similarly, quitting reduces the risk of death from lung cancer, bronchitis, and emphysema (US D.H.E.W., 1979). After ten to fifteen years of quitting, the chances of death from all causes is similar for both ex-smokers and non-smokers (Oskamp, 1984).

Incidence

Despite the evidence, millions of people continue to

smoke and thousands take up the habit every day. Canada remains fourth among all nations and has the highest rate of consumption among the industrialized world (Chronic Diseases in Canada, 1985). To date, one third of all Canadians continue to smoke and the proportion is even greater for some age groups. While the percentage of Canadians who smoke has declined since 1950, the actual number of smokers has increased along with the rising population. The total annual consumption of cigarettes has also increased. While the average daily rate of consumption was 22 cigarettes per day in 1966, the rate increased to 27 per day by 1981 (Charbonneau, 1985).

Most of the reported decline in smoking has been the result of men quitting, while the percentage of female smokers has remained relatively stable (Charbonneau, 1985). In 1966, 56.7% of men and 29.6% of women smoked; in 1980 and 1981 prevalence rates were 38.7% and 29.6% for males and females, respectively. The proportion is even greater among males and females between the ages of 25 and 29 years of age. Data reported by Rogers and Collishaw (1986), support the claims of increased smoking among younger Canadians, particularly among women in their twenties. While 34% of females between 25 and 29 years of age smoked daily in 1983, by 1986 this had increased to 47%. At particular risk is the new generation of teen smokers, since longitudinal studies have shown that the

risk of mortality increases in relation to the daily amount smoked, number of years of smoking, and earlier age of starting to smoke (Oskamp, 1984). Thus, these early starters are likely to become the heaviest smokers and find it harder to quit in the future.

The smoking habits of Edmontonians, the location of the present study, shows a similar pattern to the findings across Canada (MacDonald and Kurji, 1986). Approximately one third (153,000) of all Edmontonians smoke, with the proportion of female smokers (32% of population) being almost equal to that of male smokers (37% of population). Most (88%) smoke every day. The highest proportion of smokers is found among two groups: almost half of all males between 25 and 29 years of age smoke, and in females between 15 to 24 years of age, 40% smoke.

The results of several public opinion surveys have found that most smokers believe that the habit is harmful, would like to quit, but cannot stop without help (McAlister, 1981). As far back as 1968, 53% of smokers in one study reported that they would like to stop (Leventhal and Cleary, 1980). Yet most smokers attempting to quit resume the habit within three months (Shewchuk et al, 1977). Those who do successfully quit tend to be lighter smokers, highly motivated, middle-aged professionals or businessmen with college education. Meanwhile, the smoking trends among younger, less affluent, less educated

and heavier smokers have been much less encouraging (McAlister, 1981).

The overwhelming demonstration of the health risks associated with smoking and the desire of so many smokers to quit has created a great deal of research interest in finding effective strategies to help smokers break the habit. The following section reviews the smoking cessation literature, including individual, group and community interventions. The latter approach (community interventions) will be covered in greater detail along with a review of the mass communication literature.

Survey of Smoking Interventions

The need for developing procedures and programs to help smokers break their habit has long been recognized (Shewchuk et al, 1977). With the increasing numbers of young people taking up the habit the need today is as great as ever. The purpose of this selected review is a) to give a picture of what has been achieved in the field to date, b) to temper unrealistic expectations and c) to point to some ways that smoking habits can be changed. The following sections briefly review three main approaches to quitting (behavioral, verbal and community) and their relative successes and failures.

Behavioural Approaches

Behavioural approaches "treat the smoking response, not the smoker; smoking is the habit to be modified" (Leventhal and Cleary, 1980, p.372). Oskamp (1984), Schinke et al (1978) and McAlister(1981) have reviewed smoking reduction studies between 1972 and 1982 which used behavioural strategies. Behavioural attempts to reduce cigarette smoking have used such techniques as shock, hot air, fear arousal, positive reinforcement, contingency contracting, stimulus control, rapid smoking, systematic desensitization, cognitive conditioning, satiation, covert sensitization and thought stopping, relaxation, and hypnosis. Aversion techniques (eg. rapid smoking) have produced some of the best results (eg. 57% cessation at the end of six months). Unfortunately, using the rapid smoking method with some smokers who have heart or lung conditions is controversial and not recommended by some (Oskamp, 1984). However, Hall et al (1984) determined that the method is both safe and highly effective when used under well-controlled conditions with subjects having mild to moderate cardiovascular and lung diseases. A 24 month post-treatment follow-up visit found that 50% of the sample had not smoked since the treatment.

To date, some of the most promising behavioural

approaches have combined self-control strategies (ie. desensitization, contingency contracting, self-monitoring) and aversion techniques in a multi-component program format. Success rates of 30% after one year have been reported in a study of this sort. Specific techniques which have increased the impact of programs include explicit training in stress management, strategies for coping with urges to smoke, training in problem-solving skills to help recent ex-smokers predict and cope with relapse and diets to avoid weight gain.

Other recent treatment programs have taken into account the physiological (ie. nicotine dependence) as well as the behavioural/psychological components of smoking and have produced encouraging results. Hall et al (1985) used nicotine gum in combination with an intensive behavioural treatment and achieved higher abstinence with the combined treatment (ie. 50% at 52 weeks post treatment) than with either treatment condition alone. Nicotine gum appears to be a useful adjunct to therapy. However, when used alone, significant relapse has occurred once the gum was withdrawn, even after one year of use.

Other programs have examined the combined effects of nicotine fading (ie. the gradual reduction of nicotine content) and a cognitive/behavioural relapse prevention program (Brown et al, 1984). While the outcome of one pilot project was promising, the findings were not

replicated in a second controlled study. Although the results were disappointing with respect to over-all cessation and long term abstinence, smokers in both studies did continue to smoke reduced tar and nicotine brands.

Verbal Approaches

In contrast to behavioural programs, verbal interventions use psychotherapy and counseling methods to try and change the smoker's motivation rather than the smoking behavior per se (Oskamp, 1984). Advice from a physician to quit smoking represents the simplest verbal intervention. More specialized approaches include hypnosis, sensory deprivation and programs of individual and group counseling and psychotherapy. However, the success of these treatments are seldom reported and the methods themselves rarely subjected to controlled empirical study. As with behavioural approaches, the results of verbal methods are improved when multi-component strategies are used.

Clinical programs to help smokers quit smoking have been widespread and varied. One of the most successful has been the Seventh-Day Adventist group program which has reported cessation rates of 63% after 18 months, and 35%-40% after 2 years (Haggerty, 1977). The success of the program has been attributed to its use of such techniques

as group discussions, models of non-smoking behaviour among teachers, self-reinforcement strategies, and a buddy support system with follow-up calls. The five day program also emphasizes immediate quitting and encourages attitudinal, exercise and dietary changes to help participants cope with the effects of nicotine withdrawal.

Typically, studies of clinic programs report initial cessation rates of approximately 50%, but success rates of 13% to 20% are found a year or more later (Oskamp, 1984). Since the possibility of relapse is so great, considerable attention has been given to procedures that can help ex-smokers remain cigarette free. However, the research on these procedures (ie., booster sessions and support phone calls) has rarely shown support for their use. Paradoxically, some studies have found significantly poorer long-term results when such strategies are used (Oskamp, 1984).

Mermelstein et al (1986) have more recently examined the role of naturally occurring support systems in the smoker's own environment (ie. family and friends) and found beneficial results with respect to long term maintenance of behavioural change. These authors suggest that in contrast to support from family and friends, artificially created support networks (ie. buddy systems and continued therapist or group contact) are associated with recidivism for the following reason. Rather than

being helpful, therapeutic groups and support strategies may foster dependency and undermine the smoker's sense of self-efficacy, which may be crucial to avoiding relapse. The role and nature of support network systems are examined in greater detail along with several recent studies which have improved our understanding of how therapeutic gains can be maintained.

Long Term Maintenance of Cessation

The problems of managing relapse and maintaining abstinence continue to challenge smokers, researchers and clinicians alike. Shiffman (1984) examined the coping strategies used by both treated and untreated ex-smokers who called a hot-line after relapsing or when faced with the temptation to smoke. Coping strategies were identified as either behavioural coping responses or cognitive coping responses. The most frequently used behavioural responses were eating or drinking and engaging in distracting activities. The most popular cognitive responses were exercising willpower, thinking about non-health related negative consequences of smoking (ie. other's disapproval) and engaging in self-talk. While using either a behavioural or cognitive strategy increased the ability to resist temptation, the combination of the two responses was associated with greater abstinence. Effectiveness was not further enhanced by the number of

responses used. Among those who failed to use a coping response, smoking was more likely to occur. Individuals who had received no prior treatment for their smoking problem were more likely to do nothing or to use willpower or negative self-talk during crises than were those who had received treatment. Some coping responses were less effective than other strategies. For example, individuals who used willpower were less successful in combatting the urge to smoke. Self-punitive thinking was detrimental and associated with more relapse than any other response. The author postulated that self-punitive thinking resulted in smoking by creating negative affect and undermining the sense of self-efficacy.

The findings of the Shiffman study have several clinical implications. First, some investigators have suggested that broad-based, multifaceted intervention programs are more effective in producing lasting behaviour change than are individual smoking-reduction techniques (Shinke et al, 1978). Shiffman (1984) however suggests that instilling a readiness to cope when the need arises is more important than training clients in a broad repertoire of responses. Secondly, with some exceptions, the kind of coping response used is less critical than failure to do anything at all. However, some strategies (eg. relaxation) are less likely to be used under crisis than other responses. This finding has implications for

behaviour therapists who favour this intervention over others, considering that compliance may be poor. Thirdly, the ineffectiveness of willpower and self-punitive thinking as coping responses has implications for mass communication specialists given the popularity of these responses among those who prefer to quit on their own.

Harackiewicz et al (1987) have examined the role of attributions in initial and long term abstinence for a group of 175 smokers. Attribution theorists are interested in how people make judgements about the reasons or causes behind behaviour (Oskamp, 1984). In regards to smoking, attribution theory suggests that success in maintaining abstinence is more likely for individuals who see themselves as responsible for their changed behaviour (ie. make internal attributions). Conversely, individuals who attribute the change to external causes (eg. a drug or chance event) are more likely to relapse after treatment is withdrawn. The outcome of the study did support attribution theory in the following ways: subjects who received nicotine gum and a treatment condition which emphasized strict adherence to program guidelines (ie. the extrinsic gum group) achieved a higher initial quit rate than subjects in the intrinisic, self-help treatment condition, which emphasized the smoker's own efforts and personal responsibility. However, subjects in the intrinisic group were superior in maintaining cessation

and made fewer external attributions for their success. Conversely, ex-smokers in the extrinsic gum group were more likely to attribute their success to external factors rather than to their own efforts. Interestingly, regardless of treatment condition, ex-smokers who relapsed were more likely to blame external factors for their failure to quit. The authors described this as a self-serving strategy which allows smokers to save face.

The decision to quit in the first place, whether influenced by external factors (eg. a doctor or unexpected event) or internal factors (ie. the challenge of quitting), produced different results depending on which treatment condition the smoker received. Externally motivated smokers were more likely to quit in the extrinsic gum condition than were smokers who were less externally motivated to change. These smokers were also less likely to quit in the self-help intrinsic program. Thus, treatment effects will be maximized when the attributional orientation of the subject is compatible with the externality of the program. Finally, highly motivated smokers were more successful in maintaining cessation than were less motivated subjects.

The role of attributions in smoking cessation and maintenance is highly complex and this review of the Harackiewicz study is brief. As the authors noted, they achieved a better understanding of the positive impact of

the intrinsic, self-help treatment than of the poor long-term results of the extrinsic condition.

Using attribution theory it is possible to make the following speculations about why people can or cannot quit. Smokers who are self-motivated and make internal attributions for their decisions to quit may feel a greater sense of self-control and personal efficacy and thus may be more likely to risk quitting in the first place. When confronted with the urge for a cigarette, they may be more likely to initiate some kind of coping response to see what can be used successfully to help them overcome the urge. Moreover, failures or relapse may be experienced as less demoralizing and less disruptive to the smoker's self-confidence. In accordance with attribution theory, social learning theory has proposed that individuals are more likely to change behaviour when one has the necessary skills and knowledge and the self-efficacy or confidence in one's ability to perform the behaviour.

As Harackiewicz et al (1987) suggest, the initial superior success of externally motivated smokers in quitting is indicative of a high level of confidence or faith in the treatment (ie. the gum) or the clinician. However, those who attribute success to some external source are less likely to see themselves as in control and capable of using their own resources. Thus, when the

treatment is withdrawn, the behaviour change is not maintained. This may explain why relapse is so high in programs using nicotine gum. Similarly, the recidivism associated with booster sessions and continued therapist or group contact may also be explained according to attribution theory.

Social support theory also has significant implications for smoking cessation and maintenance. In two longitudinal perspective studies, Mermelstein et al (1986) examined three factors: spousal support, general support and the presence of other smokers. Evidence for all three factors was found, although they operated at different points in the process of becoming and remaining a non-smoker. High levels of spousal support and the perceived availability of general support were associated with cessation and short-term maintenance (ie. at 3 months post-treatment). The presence of smokers in an ex-smoker's social system (ie. at home, among friends, and at work) had a negative influence on maintenance and significantly differentiated between relapsers and long term abstainers (ie. at 12 months follow-up). Coppotelli et al (1985) also found that females who received spousal support were more likely to be successful in initial cessation and short-term maintenance.

According to Mermelstein et al (1985), social support influences behavioural change in the following ways:

1. Support may influence behaviour directly, that is, by contributing to the smoker's motivation to change and maintain the change;
2. Non-smoking support persons may influence behaviour by providing models of the desired behaviour; and
3. Support may affect behaviour indirectly by modifying the environment to reduce daily stress that often precipitates the urge to smoke.

As a result of the study, Mermelstein et al proposed that the process of quitting has several distinct phases: initial quitting, short-term maintenance, and long-term maintenance. At three months, having someone to talk to about the problems of quitting may be particularly important. Later on, an ex-smoker remains vulnerable yet may no longer seek or receive high level support. At the same time, the ex-smoker may have increased contact with smokers he/she previously avoided. These smokers provide models for smoking behaviour and access to cigarettes.

Social support theory has implications for counselors. Smoking cessation programs may need to find ways to involve support persons directly, such as having them attend treatment along with the smokers. Secondly, as the investigators suggest, it may be important to provide reinforcement and encouragement to support persons as well, so that their helpful behaviours will be maintained.

While the majority of smokers would like to quit, only a small proportion are willing to enroll in cessation clinics or seek individual therapy. Some efforts to motivate smokers to seek help have been "spectacularly unsuccessful" (Oskamp, 1984). Furthermore, the achieved success of programs to date is little, if any, better than the rate of spontaneous quitting in the population at large. Many reviews of the smoking literature have estimated that 90-95 per cent of the millions of smokers who have quit since 1964 did so on their own, without help of formal programs (Farquhar et al, 1981). However, as Kaplan (1984) has pointed out, the overall poor results and low public appeal of behavioural and verbal interventions should not be taken as an indictment against them. It may be that those who enroll in formal programs represent the most recalcitrant smokers who are least capable of changing their behaviour.

Community Campaigns

Against this background of organized smoking cessation methods, the third approach to quitting - community campaigns - is presented. In contrast to individual and small group programs, community campaigns follow a public health approach, using mass communication techniques to change attitudes and behaviour. To date the phenomenon of quitting smoking outside of formal programs

has received little research attention (Okene, 1984). Thus, there are few examples of community campaigns to reduce smoking. Hence, other health promotion programs will be briefly reviewed in order to obtain a clearer perspective on the field in general.

Several public health programs and their effects have been described by Atkin (1981a, 1981b). A 1974-76 study of an automobile seat belt campaign which utilized public service spot television announcements to promote seat belt use had no significant effect. In 1974, a family planning program in the United States attempted to reduce the numbers of unwanted births through multi-media messages promoting contraception. The program was unsuccessful in getting people to practice birth control, however it did produce effects in awareness of the topic and in visits to clinics. Another study attempted to change child-rearing practices of mothers through the distribution of well-designed pamphlets ("Pierre the Pelican") but no demonstrable change in maternal behaviour was found (Haggerty, 1977). Various television and radio anti-drug campaigns aimed at youth have consistently had limited or minimal impact. Similarly, a program carried out over three years to prevent alcoholism in several California communities was also unsuccessful in changing attitudes and drinking patterns even though many agreed with the program's message. A final example, a major health

oriented series called Feeling Good, was cancelled after an unsuccessful run on the U.S. public television network. While the program did have an impact on the knowledge, attitudes and behaviour of those who watched, the series was largely unpopular and failed to capture the interest of the general population.

Only a few studies have been conducted to assess the specific effects of media-based programs to reduce smoking. The results of these have been described by McAlister (1981) and Oskamp (1984) and are similarly disappointing. A 1971 study examined the impact of counter advertising messages broadcast in Florida between 1968 and 1970 and found that nonsmokers thought the messages were effective but smokers reported little or no change on their smoking behavior. Another study in 1972 reported that a small scale but intensive poster campaign had no effect. The effects of a city-wide "cold-turkey" project in Iowa have also been reported. This was a multicomponent program which incorporated anti-smoking publicity and posters, banned the sale of tobacco, declared a holiday, encouraged pledges among smokers to quit, and publically honoured those who had quit a month later. However, 7 months after the program only 4% of female smokers and 14% of male smokers were still abstaining.

The disappointing outcome of mass communication

campaigns over the last 30 years appears to lend little support for the use of the media for achieving lasting change of health behavior. Some researchers (McAlister, 1981) suggest that campaigns, many of which were well designed and of high quality, typically did not go far enough to be able to achieve behavioural objectives. In some cases, the audience reported that they had gained knowledge and agreed with the program message but information and persuasion alone were not sufficient to bring about change. What most programs lacked was the ability to motivate an audience to make changes.

Clearly there are many obstacles to overcome, especially in the area of media-based smoking intervention. The following section describes two examples of field experiments in smoking control which have achieved some success. The examples are used to point to the salient features of these 'successful' programs and to serve as models for the current study.

Some Successful Community Campaigns

One of the best known health campaigns is the Stanford Heart Disease Prevention Program (Farquhar et al, 1977). The campaign utilized a multi-media approach (ie. television and radio broadcast programs, newspaper columns and ads) over a two year period in three Northern California communities. The campaign sought to decrease

the risk of heart disease by modifying risk factors (ie. smoking, diet and exercise). One town received an intensive, media-only campaign, which informed them about risk factors in heart disease. A second town received the media campaign plus group instruction and support services for high risk individuals. A third community served as the control. After two years, the risk of cardiovascular disease increased in the control community but was substantially decreased in both treatment communities. In the media-plus community initial improvements were greater, including a greater reduction in cigarette smoking, but by the end of the second year the decrease in risk was similar in both communities. These results lead the investigators to conclude that mass media campaigns directed at entire communities can increase knowledge and change health habits.

A second anti-smoking campaign was conducted in Finland in 1978 (McAlister et al, 1980). The campaign was broadcast throughout the country in a series of seven semi-weekly television programs. The program format involved expert instruction by counselors as well as group discussion with a studio group of ten volunteer smokers. The T.V. programs were combined with extensive general information and news coverage. In one province of Finland (North Karelia) an intensified program was organized in which 200 non-professional support group leaders were

recruited to form local self-help groups. In addition, the dairy industry in North Karelia cooperated by developing low-fat dairy products. Approximately 10%-20% of the smokers in the country followed the campaign. Of this group, 10% stopped smoking after 6 months. While this represents only 1% of the nation's smokers, in absolute terms, the figure translates into 10,000 ex-smokers who attributed success in quitting to the program. Furthermore, the effect was achieved at an estimated cost of one dollar per ex-smoker (McAlister et al, 1980). In North Karelia, the cessation rates were approximately double that of the whole country. The smoking cessation program was repeated one year later and achieved comparable results.

Compared with the Finnish and the Stanford projects, most community health campaigns have not received as thorough an evaluation or shown as strong evidence of success. What increased the potential for the campaigns' success can be attributed to the incorporation of certain strategies in addition to the mass media programming. The strategies involved a combination of the following (Flay, 1981 and Okene, 1984):

i) skill development - ie. providing information about behavioural control and behavioural alternatives and teaching the skills required to perform them;

ii) interaction with the audience - ie. via telephone or

printed material;

iii) face-to-face intervention and counseling through supplementary clinics; and

iv) social support system networks and the mobilization of community resources (eg. cooperation of the dairy industry in developing low-fat dairy products in North Karelia).

In addition to the above, Flay (1981) outlines other critical factors that increase the effect of mass communication programs. For example, effective multi-media advertising strategies must be carried out to ensure that programs reach the intended audience. Secondly, efforts to ensure continued audience interest must include the use of credible experts who present the message in an entertaining and motivating way. Lastly, according to Okene (1984, p.1199) broad based programs that are individually oriented and "woven into the naturally existing structures and social networks within the smoker's environment" hold the most promise for a smoke-free society.

Summary

This section of the present work has described recent evidence concerning the smoking problem including its health hazards, incidence and interventions. To date the

impact of most cessation programs has been transitory and minimal. While campaigns utilizing the mass media have produced particularly discouraging results, a few innovative programs have demonstrated that lifestyle change is possible. Two noteworthy projects (the Stanford and Finnish experiences) integrated a media approach with multi-component interventions and emphasized personal involvement and support within the context of one's own social group. The success of these projects provides evidence for the potential of the mass media to effect lasting change in community settings, providing that critical elements are incorporated. The results of integrated programs of this sort need to be further demonstrated and careful evaluation made to further our knowledge of the field. The next chapter describes a program using radio, designed to help smokers quit smoking.

Chapter III

Design, Methods, and Procedures

Introduction

This exploratory study proposed a health promotion campaign using radio to influence the smoking behaviour of individuals in one metropolitan community. The objectives of the study were two-fold: a) to explore the level of public interest in a media-assisted approach to smoking cessation, and b) to assess the impact of the program on smoking and other related health variables for a group of volunteer participants. Factors such as time, cost, and program accessibility were considerations in favour of the use of a quasi-experimental design. The following is a review of the procedures and design of the present study.

Background to the Study

The idea for the project originated with Dr. J. Paterson and Dr. C. Blashko in June, 1984. Dr. Paterson is a practicing psychologist and Professor in the Department of Educational Psychology at the University of Alberta. Dr. Blashko is a practicing psychiatrist in association with a general hospital and Associate Clinical

Professor at the University of Alberta. Since 1983, Drs. Paterson and Blashko have hosted a popular, open line radio show, That's Living, five days a week on CJCA-AM in Edmonton, Alberta. That's Living is heard by 25,000 listeners per 15 minute segment. The success of this program has convinced the hosts of the value of a media approach to community education (Paterson and Blashko, 1985).

In July 1984, preliminary informal discussions were held with Doris Lewoniuk, Executive Director of the Alberta Lung Association, who lent valuable support for the project in several ways, ie. provided financial support, contributed smoking cessation materials and brochures for distribution to participants, and coordinated volunteers who mailed questionnaires and handled the returns. The Program Director of CJCA radio, Bob Lang, also cooperated in allowing the hosts of That's Living to devote a week of the program to the topic of smoking and stopping smoking. Along with the Alberta Lung Association, the management of CJCA agreed to sponsor a public meeting at the local Convention Centre, an event which was a major component of the stop smoking program.

Target Population and Study Sample

Target population - the research population included

regular listeners to That's Living and other citizens of Edmonton and its environs who heard of the stop smoking campaign in another way. An advertisement placed in a major local newspaper, the Edmonton Journal, was the method used to inform the public about the program. The advertisement solicited volunteer participants by asking smokers who wished to quit to return a registration form, providing address and current smoking data, making follow-up possible. 950 smokers indicated a willingness to participate by returning the program registration form.

Study Sample - The study sample consisted of 150 volunteer subjects selected from the target population who met the following criteria:

1. the subject was a smoker;
2. listened to the radio program;
3. completed a follow-up questionnaire at one month;

and 4. was willing to be contacted again for an 18 month post program follow-up.

Program Description

The program was developed during the months of July, August and September, 1984. It was advertised in early September 1984 and delivered during the week of September 24th to 28th.

The content of the 5 day program was primarily educational and included current information about the physical and psychological aspects of smoking as well as instruction about coping strategies to handle the inevitable stress and anxiety associated with quitting. On three of the days, medical or psychological experts co-hosted the program. The format for the week was as follows:

<u>September 24 (Monday): Session 1</u>

The host, Dr. Paterson, introduced the topic "Getting Started: Kick the Nicotine Habit". Instruction was given for simple behavioral techniques such as monitoring situations that precipitate smoking and relaxation methods to deal with urges to smoke.

<u>September 25 (Tuesday): Session 2</u>

The host, Dr. Blashko, and his invited guest, Dr. Wilson of McMaster University, introduced the topic "Problems of Smoking and Stopping Smoking". The negative effects of smoking and the immediate physiological response to quitting was described.

<u>September 26 (Wednesday): Session 3</u>

Dr. Blashko and his guest, Dr. F. McDonald, medical internist with the Edmonton General Hospital, presented the topic "Physical Diseases Caused by Smoking". Current information was presented about the long term health consequences of habitual

smoking.

September 27 (Thursday): Session 4

Dr. Blashko and his guest, Doris Lewoniuk, Director of the Alberta Lung Association, introduce the topic "How to Stop Smoking".

September 28 (Friday): Session 5

Dr. Paterson introduced the topic "Lifestyle Changes Now [that] You Are a Non-Smoker". Discussion focussed on how to maintain or improve health by making significant changes in lifestyle patterns.

Following the presentation of the day's topic, which took approximately 10 minutes, listeners were invited to phone in with their own questions and suggestions. Each of the five programs was 1 hour and 25 minutes long, and was broadcast from 2:05 PM to 3:30 PM. During each program, mention was made of the public meeting which took place on the evening of September 27 at the Convention Centre (Session 6). An estimated 500 people attended this rally. The purpose of the meeting was to increase public awareness of the smoking problem and to gain support for the efforts of those quitting. The format for the evening was designed to be both educational and entertaining. Program sponsors and researchers were all present and included the following: Drs. Paterson and Blashko, Ms. D. Lewoniuk, and Bob Lang, program manager for CJCA, who

chaired the evening's events. Brief addresses were given about health effects from smoking and methods of stopping. A relaxation exercise was conducted by Dr. Paterson. Large amounts of print materials were available from the Alberta Lung Association and live music was performed by an organist. Program hosts and sponsors mingled with the public at the end of the evening which lasted approximately 90 minutes.

Procedures and Instruments

Follow-up data were collected by means of two questionnaires and a phone interview. The names of 950 smokers who registered for the program constituted the initial mailing list to which the 1st questionnaire was sent (Appendix A). The questionnaire asked for demographic data (including name, sex, age, and address), history of smoking and cessation attempts, reasons for smoking, reasons for wanting to stop and level of motivation to quit. The questionnaire also asked the smoker to provide the name of a friend or spouse who would encourage and support the smoker's efforts to quit. A total of 286 usable questionnaires were returned.

The second questionnaire was sent to the 950 smokers on the original mailing list in an attempt to obtain greater participation in the study (Appendix B). In

addition to repeating most of the questions from the first questionnaire, the second questionnaire asked about smoking behaviour during three time periods: the month before the program, the month of the program, and the month following. Other questions asked for a 5-point Likert-type rating of the helpfulness of each component of the program and about changes in awareness, concern or health-related behaviour since the program. Unsolicited comments were also noted. 150 usable questionnaires were returned.

The third source of data, completed in March 1986, was compiled from the 18 month follow-up phone interview (Appendix C). Interviews were conducted by one person for consistency and each was completed within four to five minutes. Subjects were asked about present smoking behaviour, smoking during the last 18 months, reasons for starting, present motivation to quit and general comments about the program. Interviews were completed with 128 subjects, which represents an attrition rate of 19%.

As the study was unique, no known instruments with proven reliability and validity were available. Questions were developed in consultation with the program investigators, Drs. Paterson and Blashko. Time and financial constraints did not allow for pretesting of questionnaires. Attempts were made to enhance the validity of the instruments by using standardized

questions in a standard way. In addition, the test instruments were reviewed by peers in the field who felt that the questionnaires had content and face validity. Data were collated by one observer for consistency and greater reliability.

The use of self-report data on smoking questionnaires has been frequently criticized. However, data from some studies (eg. MRFIT study) suggests a good correlation between subjects' reported cessation and more objective measures of smoking (Schinke et al, 1978; Davis et al, 1984). Furthermore, clinical analysis of blood, urine or carbon dioxide samples is time consuming, expensive, and generally impractical for non-clinical research.

Data Analysis

Data analysis was conducted in consultation with Dr. Dwight Harley, analyst, and Dave Brown, statistical consultant, in the Division of Educational Research Services (DERS). Techniques used to process results included hand tallies and SPSSX routines. In the latter case, information was coded and transferred from questionnaires to card code sheets. Two coders carried out spot checks and cross tallies to ensure that mistakes were not being made. Code sheets were then processed onto key punch cards by an operator at DERS. Computer programs

to handle analysis of data were written by Dave Brown.

Analysis of data was organized around the five research questions and utilized simple descriptive statistics (frequency tabulations, percentages, means, and tests of significance). Missing values were included in calculations and shown in the tables.

Research Questions

The present study was designed to be exploratory rather than experimental; therefore no specific hypotheses were formulated. The following research questions were germane to a study of this nature:

1. What are the characteristics of those who participated in the study?
2. Will promotion of the program through a local newspaper and over the radio spark interest within the general population to the extent that people will attend a public meeting on the topic?
3. How will participants rate the helpfulness of the different components of the five day program?
4. What is the program effect, if any, on subjects' smoking and other related health variables?

Delimitations of the Study

The time frame, resources and capabilities of the program were important considerations in making decisions about the program design and methods for data collection and analysis. A quasi-experimental design was found to be the best method for this study. As many of the parameters of rigorous research (randomization and control groups) were beyond the scope of the project, the design does not control for many of the threats to the external validity. Rather than generalization, the researchers were more concerned with the feasibility of a particular approach in a particular setting. Quantitative success criteria were not established although it was expected that participation in the program would result in greater quitting than is found for those with no program. Possible confounding variables included other programs that smokers might be exposed to from community groups and media sources, as well as mounting social pressures and municiple bylaw restrictions against smoking at work and in public places.

Limitations of the Study

Anticipated problems with the study include: the small sample size, limitations on generality of the results to the general population, inherent difficulties

in using self-reported data, subject-experimenter biasing on questionnaires and phone interviews, and loss of data through subject drop-out prior to the phone interview.

Considerations for Radio as a Communication Medium

The choice of radio as the communication medium was made on the basis of the following considerations:

a) 98% of all American homes have at least one working radio; radios are found in 95% of all cars; radio captures 40% of the mass media market (Price and Allensworth, 1979).

b) radio reaches large numbers of people of all socio-economic status, literate and illiterate.

c) radio is more cost effective than other media, such as television.

d) the open line radio show for which the treatment program was designed has an established audience of approximately 25,000 listeners per 15 minute segment (Paterson and Blashko, 1985).

Consideration must also be given to a number of limitations associated with the use of radio in delivering a stop smoking program. Nostbakken et al (1979) have described several weaknesses inherent in smoking cessation programs using television which apply here:

a) the use of radio in the past for highly informational

health education programs was not successful - audiences were bored.

b) listeners primarily want to be entertained rather than informed. This places a high demand for an entertaining delivery.

c) radio on its own is not suited for changing smoking behaviour.

d) radio is poor at delivering concrete detailed information.

e) radio lacks visual impact, therefore skill demonstration and role model effects are difficult to achieve.

Summary

The stop smoking program evolved as a creative response to a research interest in preventive health initiatives utilizing radio. Research questions (exploratory in nature) along with practical considerations established the program method and procedures. Thus a quasi-experimental design was applied using a group of volunteer smokers. The results of the study are presented in the next chapter.

Chapter IV

Results

Information obtained from a 13-item questionnaire and a phone interview (interview guide, Appendix B and C) has been compiled in this chapter. Data have been organized around the four research questions.

Question 1: What are the characteristics of those who participated in the study?

Personal data are shown in Tables 1 and 2. The subjects (N=150) were predominantly middle aged ($\bar{x}$ = 44 years) and female (64%). Over half of the sample (55%) fell between the ages of 35 and 55 years.

TABLE 1: Proportion of Sample for Each Sex

Sex	Frequency	%
Females	96	64
Males	54	36
Total	150	100

TABLE 2: Distribution of Ages

Age Range	Frequency	%
15 - 24	7	4.7
25 - 44	79	52.7
45 - 64	53	35.3
65 +	10	6.7
missing	1	.7
Total	150	100.0

($\bar{x}$ = 43.9 years; S.D. = 12.8 years; range = 22 to 74 years)

Background data of smoking history are shown in Tables 3 and 4. The number of years subjects had smoked (Table 3) ranged from one to 51 years ($\bar{x}$ = 25 years). The majority (91%) had made prior attempts to quit. Nicorettes and "cold turkey" were the most common methods of quitting used in the past. The mean pre-test measure of smoking (given for the month of September) was 7 packages per week. Motivation to quit (Table 4) was rated as high or very high by 67%; less than 10% rated their motivation to quit as low.

TABLE 3: Number of Years Smoked

Years	Frequency	%
1 - 9	7	4.7
10 - 19	40	27.0
20 - 39	84	56.8
40 - 51	17	11.5
	---	---
Total	148	100.0
(missing)	(2)	

($\bar{x}$ = 25.1 years; S.D. = 10.6 years; range = 1 to 51 years)

TABLE 4: Pre-Test Motivation to Quit

Subject Motivation Rating	Frequency	%
very high	61	41.5
high	38	25.9
moderate	34	23.1
low	14	9.5
	---	---
Total	147	100.0
(missing)	(3)	

Question 2: Will promotion of the program through a local newspaper and over the radio spark interest within the general population to the extent that people will attend a public meeting on the topic?

The estimated attendance at the evening rally is given as a measure of public interest. Approximately 500 persons (including smokers and non-smoking spouses and friends) were present for this portion of the program. Public attendance exceeded investigators' expectations by 200 to 300 persons. While an exact count was not obtained, the room at the Convention Centre was filled to capacity and the response to the evening's activities was highly favourable.

Question 3: How will participants rate the helpfulness of the different components of the five-day program?

The results of the Likert-type ratings of each of the five radio programs and the public meeting are shown in Tables 5 to 10. All 6 interventions were rated as very helpful by approximately 50% or more of the subjects who heard them. Less than 10% found any interventions not helpful. However, the proportion of subjects who did not listen to the radio programs during the first four days

was between 27% and 39%. An even greater proportion missed the final radio program and the evening rally (50% and 55% respectively).

TABLE 5: Subject Ratings of Radio Show, Session 1
"Getting Started: Kick the Habit"

Host: Dr. Paterson

Rating	Frequency	%
very helpful	63	57.8
helpful	44	40.4
not helpful	2	1.8
Total	109	100.0
(missing)	(41)	

TABLE 6: Subject Ratings of Radio Show, Session 2
"Problems of Smoking and Stopping Smoking"

Hosts: Dr. Blashko and Doug Wilson

Rating	Frequency	%
very helpful	57	58.2
helpful	38	38.8
not helpful	3	3.1
Total	98	100
(missing)	(52)	

TABLE 7: Subject Ratings of Radio Show, Session 3 "Physical Diseases Caused by Smoking"

Hosts: Drs. Blashko and McDonald

Rating	Frequency	%
very helpful	52	52.0
helpful	38	38.0
not helpful	9	9.0
harmful	1	1.0
Total	100	100.0
(missing)	(50)	

TABLE 8: Subject Ratings of Radio Show, Session 4 "How to Stop Smoking"

Hosts: Dr. Blasko and Ms. Doris Lewoniuk

Rating	Frequency	%
very helpful	44	48.4
helpful	42	46.2
not helpful	5	5.5
Total	91	100
(missing)	(59)	

TABLE 9: Subject Ratings of Radio Show, Session 5
"Lifestyle Changes Now You Are a Non-smoker"

Host: Dr. Paterson

Rating	Frequency	%
very helpful	45	60.8
helpful	23	31.1
not helpful	6	8.1
	---	---
Total	74	100.0
(missing)	(76)	

TABLE 10: Subject Ratings of the Public Rally

Rating	Frequency	%
very helpful	35	52.2
helpful	29	43.3
not helpful	3	4.5
	---	---
Total	67	100.0
(missing)	(83)	

Question 4: What is the program effect, if any, on subjects' smoking and other health-related variables?

Results of 3 Month Follow-up

Self-reported subject smoking is shown in Tables 11, 12 and 13. Statistical testing (2-tail T-tests) was used to determine the significance of any difference found in weekly smoking as reported for the month prior to the program (September) and the two months following the program (October and November). The results were significant ($p<.01$) for comparisons of amounts smoked per week for each month. Weekly smoking was reduced from a mean of 7 packages in September to a mean of 4 packages in November (Table 13). Data suggests that the program effect on weekly smoking was immediate, significant, and continuous over an approximate 3 month time interval. The reported quit rate for subjects at 3 months is shown in Table 12. 34% of the sample had stopped smoking. Note that the figure represents the accumulated quit rate over 3 months rather than continuous non-smoking for that period.

TABLE 11: T-Tests for the Significance of Difference Between Mean Weekly Packages of Cigarettes Smoked In Six Time Intervals

Time Interval Tested	t	df	p
Sept 1984 and Oct 1984	7.17	124	.000*
Sept 1984 and Nov 1984	8.36	123	.000*
Sept 1984 and Mar 1986	5.50	71	.000*
Oct 1984 and Nov 1984	2.77	124	.007*
Oct 1984 and Mar 1986	0.22	69	.823
Nov 1984 and Mar 1986	-.66	68	.509

* results significant at .01 level

Table 12: Quit Rates

	Subjects who quit	
Month	Frequency	%
September 1984	6	4.5 *
October 1984	29	23
November 1984	33	26
December 1984	51	34
March 1986	44	36 **

* figure represents the proportion who quit in the week of the program or just prior to it and who wanted to be included in the study to help them maintain control over their smoking

** due to subject attrition (N=28), sample size was reduced from 150 to 122 persons at 18 months follow up.

TABLE 13: Weekly Cigarette Consumption

Month	Mean Weekly Consumption	S.D.	No. of Subjects
September 1984	6.7	4.0	133
October 1984	4.4	4.3	126
November 1984	3.8	3.7	127
March 1986	5.1	2.9	78 *

* See second note from Table 12.

The program effect on five health related variables at 3 month follow up is shown in Table 14. A large majority of subjects (82% to 99%) stated that since the program they were more concerned about their health, more aware when they and others were smoking and were talking to others about smoking. 64% were also reading about the topic. Only one third were taking or planning to take other smoking cessation programs.

TABLE 14: Related Changes at 3 Months Follow-up

Change	Frequency	%
concerned	144	98.6
talking	119	81.5
reading	91	63.6
other programs	46	35.7
aware	146	99.3

Results of 18 Month Follow Up

A phone interview completed on 122 subjects was the method used to obtain data at 18 months follow-up. Self-reported smoking and motivation level are shown in Tables 12, 13, and 15. At 18 months post program the reported quit rate was 36% (Table 12). This figure represents recent quitters as well as subjects who maintained continuous cessation since the program. Of those who continued to smoke (N=78), 92% still wanted to quit. Weekly smoking for subjects ($\bar{x}$ = 5.3 packages per week) represents a significant difference from smoking rates in September 1984 ($p<.01$, Table 11). However, further reductions in smoking achieved in October and November 1984 where not maintained. Rather, the trend appeared to be towards increased smoking since November although the difference was not significant. While most subjects remained motivated to quit, there was a significant

difference between pre-test mean motivation and mean motivation at 18 months post program ($p<.01$) (Table 16). The majority (64%) now rated their motivation to quit as moderate or low compared to a majority pre-program rating of high or very high (Table 15). The most frequent reasons given for not quitting or for relapse were weight gain, an inability to cope with stressful situations, and an inability to sustain motivation.

TABLE 15: Motivation to Quit at 18 Months

Subject Motivation Rating	Frequency	%
very high	10	13.3
high	14	18.7
moderate	30	40.0
low	18	24.0
nil	3	4.0
	---	---
Total	75	100.0
(missing)	(75)	

Table 16: T-Test for the Significance of Difference Between Pre-test Mean Motivation to Quit Smoking and Post-test Mean Motivation

Time Interval	t	df	p
Sept 1984 and Mar 1986	-3.76	73	.000 *

* - result significant at .01 level

Summary of Findings

Subjects were predominantly female, middle aged (mean = 44 years), chronic, heavy smokers (smoking history mean = 25 years). Prior to the program, the mean consumption of cigarettes was 7 packages per week (S.D. = 4). All but 9% reported one or more previous attempts to quit. Motivation to quit was high or very high for two-thirds of the smokers. The results of self-report outcome data at three months follow up show a quit rate of 34% and significant reductions ($p<.01$) in weekly smoking over three months. A favourable program impact was shown in other related health behaviours (eg. talking to others about smoking), in the level of concern about health and in awareness of their own and others' smoking. Only one third reported that they were taking or planning to take other stop smoking programs. The results of the 18 month follow up phone interview are less certain due to a

significant loss of subjects (19% attrition) and other threats to validity (history, maturation). A 36% quit rate was reported and weekly smoking remained significantly reduced from the pre-program smoking rate. While the majority of the smokers still wanted to quit, their level of motivation was significantly lower ($p<.01$) than at the onset of the program.

The public rally was attended by approximately 500 persons (including both smokers and non-smoking spouses and friends). The evenings activities received a highly favourable response and 52% of the sample rated the event as very helpful. The response to five radio interventions as measured by suject ratings was also positive; 50% or more found the programs to be very helpful. However a large proportion of subjects (39% to 55%) missed hearing the radio programs or attending the rally.

The next chapter is a discussion of these results including comments on validity. Finally, some conclusions are presented, along with recommendations for further research.

Chapter V

Discussion and Recommendations

The main goal of this descriptive study was to explore the acceptability and impact of a radio assisted approach to smoking cessation for a group of volunteer subjects. The present chapter consists of a discussion of the results, some conclusions and implications for further research.

Discussion of Results

Sample Characteristics

From demographic and background data obtained, the following characteristics were noted. First, it is likely that a majority of the subjects were regular CJCA and That's Living listeners and thus have similar characteristics. The mean age (44 years) and female:male ratio (almost 2:1) corresponded with the CJCA estimates for the afternoon target audience as given by Rick Lewis, CJCA assistant program manager (i.e. age range 30 to 50 years old; 70:30 female to male ratio). Secondly, the pre-program measure of weekly smoking for the sample (mean = 7 packages per week) was comparable to the national consumption rates for Canadian smokers in 1985 (ie. 27

cigarettes per day) (Collishaw, 1987). Thirdly, the high level of motivation to quit found in the sample was not an unexpected finding. Smokers not wanting to quit are unlikely to join a cessation program. However, from comments made during the phone interview it is reasonable to conclude that the program also contributed to subject motivation. Finally, for most of the subjects, the program represented their first participation in an organized quitting program. Perhaps this means that the campaign had a special appeal for this group because it provided an opportunity to gain the necessary information, skills and support without leaving their own environment.

The findings showed that the sample were a relatively homogeneous group with respect to volunteering, age, sex, motivation, smoking history and methods of quitting. Thus self-selection and regression represent important sources of bias for the results.

The Rally

It is difficult to comment on the findings with respect to attendance at the public meeting. The event was unique and the amount of hard data obtained very limited. Fewer than 50% of the subjects who completed questionnaires attended the event. Thus the ratings of the rally represent the opinion of less than 15% of those in attendance. However, a turn-out of 500 people seems to

be large for a public forum of this kind and the event was rated as very helpful by more than half of the subjects who attended.

It is difficult to judge what prompted people to attend. The popularity of the investigators as the regular hosts of That's Living and the opportunity to see CJCA personalities 'live' were probably important factors contributing to the turn-out. A second and related factor contributing to the turn-out was the degree of credibility the investigators have achieved with their regular audience. Source credibility has been identified as critical for campaign effectiveness (Atkin, 1981a, 1981b).

The importance of a public forum approach in providing organized community support has been documented in the literature. First, a public forum provides an opportunity to educate large numbers about an important topic and education gives smokers increased motivation to quit. Secondly, a public forum decreases feelings of isolation which many smokers experience when quitting. Even among very large groups, feelings of support for those trying to quit can be achieved (Mermelstein et al, 1986). Third, Coppotelli et al (1985) found that cessation is more likely to be maintained when smokers receive spousal support. The rally was probably the first opportunity in this community for a group of smokers and their significant others to gather. The rally may have

functioned to strengthen existing support structures, thus helping smokers initiate and maintain changes.

Program Ratings

Several weaknesses related to the instruments and data collection process need to be acknowledged. First, Likert-type rating scales are known to produce a resonse set or tendency for subjects to rate answers in one direction. Secondly, subjects' feelings about the investigators may have biased the results. For example, participants' ratings may have reflected their liking and respect for the hosts rather than their true feelings about the program. Conversely, the ratings of those who failed to quit may have reflected anger or disappointment. Third, questionnaires were completed several weeks after hearing the programs and reliance on memory introduces error. Fourth, the high incidence of missed programs biases the results. For some respondents, work or other committments caused them to miss programs. But for others, was the five day program too long and did interest wane as a result? Fifth, the returned questionnaires (150) represents only 15% of the total sent out (1000). There was no way of knowing about the reactions of those who heard the program but did not want to participate in the study. Finally, only a limited range of data was obtained. Thus it is difficult to know what content or

methods were most or least helpful.

While important sources of bias have been recognized, it is still reasonable to conclude that the programs were highly acceptable and helpful. Along with the favourable ratings, unsolicited comments attached to the questionnaires, and statements made at the time of the phone interview, provided evidence to support this conclusion. For example, frequent positive comments were made relating to the program content, the amount of support given and the advice from other listeners through the open-line. The open-line phone-in component of the program may have served several important functions that facilitated learning and behaviour change. First, the open-line provided an opportunity for active audience participation and immediate feedback, which have been found to positively influence the change process (Alcalay, 1983). Secondly, hearing peers talk about the problem can facilitate change by reinforcing desirable attitudes and behaviours conducive to change.

Program Impact: Changes at Three Months

Several weaknesses in the data and the instruments have been noted. First, only self-report data were collected and this may have resulted in over-reporting success or under-estimating weekly smoking. Some studies have found inconsistencies between self-report data and

more objective measures (Puska et al, 1985) while others have not found this (Schinke et al, 1978). Secondly, the use of forced choice (ie. Yes/No) questions have been known to produce a response set or a tendency to check 'yes' for any question rather than 'no'. Subjects would also be aware of what answers were more socially desirable and may have altered their responses. Finally, the process of completing the questionnaires itself may have produced a behavioural impact.

Nonetheless, despite these weaknesses, the following points are of considerable importance. The quit rates (34%) achieved at three months were at the high end of the 20% to 35% range generally reported for cessation groups and were considerably better than rates of spontaneous quitting, that is, quitting without a program (Leventhal and Cleary, 1980). Secondly, those who didn't quit significantly reduced the amount they smoked. Thirdly, a majority of subjects made other important changes and were more aware and concerned about smoking as a result of hearing the program. Thus, the results are highly indicative of program short term effectiveness.

Program Impact: Changes at 18 Months

Interpretation of the data at 18 months is more tenuous. History, maturation, subject attrition and changes in the data collection processes which introduced

interviewer effects are the major sources of bias. Since the interval between the treatment and the second follow-up was long, it is highly plausible that historical events (eg. price hikes in the cost of cigarettes, other programs, increasing social intolerance, restrictions on smoking in public places and at work, etc.) could have produced the changes. Moreover, the loss of 28 subjects at 18 months represented a significant attrition rate (19%) and introduced an important source of bias.*

The 36% quit rate obtained at this time is impressive. However, it is important to note that the figure does not represent continuous non-smoking for that period. Some smokers reported episodes of relapse and had quit again prior to the interview. Therefore cessation may be due only in part, or not at all, to the program. What the figure does suggest is that some smokers with a sincere desire to 'kick the habit' will continue to try, even after failure. It may be that given sufficient attempts, these smokers will eventually achieve success.

While a highly significant decrease in weekly smoking was also shown, the goal of any program has to be complete cessation. To date, there is no evidence that reducing smoking diminishes the health risks, nor has a safe level of smoking been found (Davis et al, 1984). However, being

* - Windsor et al (1984) have defined excessive attrition as a loss of 10% or more of the sample

able to cut down on the number of cigarettes may represent an important first step towards stopping for some smokers.

The most frequent reasons given by subjects for not quitting or for relapse were an inability to cope with stressful situations, loss of motivation, and weight gain. This finding has implications for future programs.

Conclusions

Important threats to validity and reliability for this study are related to regression, instrumentation, history, and attrition. However, it can be reasonably concluded that the 34% of the sample who achieved cessation three months after the program did so as a result of the program. An even greater proportion made other changes and were more aware and more concerned about their smoking. While only tentative inferences can be made about the findings at 18 months follow-up, the program was likely one of several factors contributing to the 36% cessation rate reported at that time.

Likely the program effects are much broader than can be known. The potential impact, given the fact that as many as 25,000 listeners heard the program, is impressive. The turn-out for the rally gave some indication of the level of community interest and concern about the topic. Furthermore, the event demonstrated how a public forum can

be used creatively to facilitate organized social support and health promotion in a community.

The potential for mass media health education has only recently begun to be realized. The literature survey shows that mass media communication campaigns can have a greater impact in influencing behaviour if better use is made of the theoretical knowledge at hand. The present study provides evidence for the feasibility of a media approach to smoking cessation. The question remains as to whether these positive results were unique to this particular group of self-selected smokers.

Recommendations

The following are some directions for future research which may strengthen the knowledge in the field.

1. The experience of the present study has shown the potential of radio as a tool for health education and smoking reduction. The next appropriate step for research is the implementation of field projects, as well as studies under controlled experimental conditions, with other audiences to see if results can be replicated.
2. Research has shown that support from social networks and community organizations in the smokers' natural environment has strengthened the effectiveness of

programs (Mermelstein et al, 1986; McAlister et al, 1980). Further research is needed to explore ways of mobilizing support structures in other settings. Included in the list of potential resources are civic and religious groups, special interest groups, volunteer agencies, school and job-related groups, clergy, and the smoker's own physician and spouse.

3. Spousal support in particular has been identified as a highly important factor for change to be maintained, especially for females who have recently quit smoking (Coppotelli et al, 1985). Research is needed to determine how family members can support a recent non-smoker most effectively during the transition period to a non-smoking lifestyle.

4. The Stanford and North Karelia projects have shown how active participation and person-to-person communication can increase campaign effectiveness. The present radio campaign may have facilitated these processes through the open-line component of the program but the role of this component needs to be examined further.

5. Several high risk groups of smokers have been identified in the literature, including pregnant women, people with existing health problems and the new generation of teen and young adult smokers. For these groups highly specific media interventions may

prove most effective.

6. More field research is needed to strengthen the long term effect of mass communications. Specifically, methods to help smokers remain motivated need to be developed. Programs concerned with stress management and diet control during the transition period need to be implemented and their results evaluated.

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APPENDIX A

QUESTIONNAIRE # 1

STOP SMOKING QUESTIONNAIRE

1. NAME: _____

2. ADDRESS: _____

3. AGE: _____

4. NAME OF SPOUSE OR FRIEND WHO CAN ACT AS YOUR HELPER IN ASSISTING YOU TO STOP SMOKING: _____

5. HOW LONG HAVE YOU BEEN SMOKING? _____

6. IF YOU SMOKE:

   A) CIGARETTES - HOW MANY PACKAGES PER WEEK? _____

   B) CIGARS - HOW MANY PER WEEK? _____

   C) PIPE - HOW MANY OUNCES PER WEEK? _____

7. STATE SOME OF THE REASONS WHY YOU SMOKE (E.G. TO RELAX, TO RELIEVE BOREDOM, HABIT, PLEASURE, CAN'T STOP, ETC.)

   _____

   _____

8. HAVE YOU TRIED TO STOP SMOKING BEFORE? _____

   HOW MANY TIMES? _____

   WHAT METHOD(S) DID YOU USE TO QUIT? (E.G. OTHER STOP SMOKING PROGRAMS OR AIDES, DRUGS, RELAXATION TECHNIQUES, "COLD TURKEY", ETC.) _____

   _____

   _____

9. HOW STRONG IS YOUR MOTIVATION TO STOP SMOKING NOW?

   VERY HIGH ( ) HIGH ( ) MODERATE ( ) LOW ( ) NIL ( )

10. WHY DO YOU WANT TO STOP SMOKING?

    LIST THE WAYS THAT YOU AND/OR OTHERS WILL BENEFIT BY YOUR NOT SMOKING

    _____

11. HOW OLD WERE YOU WHEN YOU STARTED TO SMOKE? _____

WHY DID YOU START? _____

12. DO YOU SMOKE MOST HEAVILY IN (CHECK ONE)

THE MORNING ___ THE AFTERNOON ___ THE EVENING ___

STATE THE REASON(S) FOR SMOKING MORE HEAVILY AT THIS TIME OF THE DAY.

_____

_____

John G. Paterson, Ed.D. Carl A. Blashko, M.D.

APPENDIX B

QUESTIONNAIRE # 2 - THREE MONTHS FOLLOW-UP

STOP SMOKING QUESTIONNAIRE

1. NAME: _____

2. ADDRESS: _____

3. AGE: _____

4. NAME OF SPOUSE OR FRIEND WHO CAN ACT AS YOUR HELPER IN ASSISTING YOU TO STOP SMOKING _____

5. HOW LONG HAVE YOU BEEN SMOKING? _____

6. SMOKING HABITS; LET'S LOOK AT CHANGES IF ANY...

	1 Sept 84	1 Oct 84	1 Nov 84
a) CIGARETTES - HOW MANY PACKAGES PER WEEK?	_____	_____	_____
b) CIGARS - HOW MANY PER WEEK	_____	_____	_____
c) PIPE - HOW MANY OUNCES OF TOBACCO PER WEEK?	_____	_____	_____

7. HAVE YOU TRIED TO STOP SMOKING BEFORE?

_____YES _____NO HOW MANY TIMES?_____

WHAT METHOD(S) DID YOU USE TO QUIT? (EG. OTHER STOP SMOKING PROGRAMS OR AIDES, DRUGS, RELAXATION TECHNIQUES, "COLD TURKEY", ETC.) _____

_____

8. HOW STRONG IS YOUR MOTIVATION TO STOP SMOKING NOW?

VERY HIGH ( ) HIGH ( ) MODERATE ( ) LOW ( ) NIL ( )

9. HOW HELPFUL WERE THE CJCA RADIO PROGRAMS AND THE RALLY AT THE CONVENTION CENTRE IN HELPING YOU TO STOP SMOKING?

	SHOW	GUEST	TITLE
a)	24 Sept/Mon Dr. Paterson		Getting Started - Kick the Nicotine Habit

b)	25 Sept/Tues Dr. Blashko	Doug Wilson McMaster U	Problems of Smoking and Stopping Smoking
c)	26 Sept/Wed Dr. Blashko	Dr. F. McDonald Edmonton	Physical Diseases Caused by Smoking
d)	27 Sept/Thur Dr. Blashko	Doris Lewoniuk Alta Lung Assoc	How to Stop Smoking
e)	27 Sept/Thur Drs. Blashko/ Paterson		Convention Centre Rally
f)	28 Sept/Fri Dr. Paterson		Lifestyle Changes Now You Are A Non-smoker

CHECK ONE FOR EACH DAY

	5 Very Helpful	4 Helpful	3 Not Helpful	2 Harmful	1 Didn't listen or attend
a)	_____	_____	_____	_____	_____
b)	_____	_____	_____	_____	_____
c)	_____	_____	_____	_____	_____
d)	_____	_____	_____	_____	_____
e)	_____	_____	_____	_____	_____
f)	_____	_____	_____	_____	_____

10. DID THE STOP SMOKING PROGRAM MAKE YOU CONCERNED ABOUT YOUR SMOKING HABITS AND YOUR HEALTH? ___YES ___NO

11. SINCE LISTENING TO THE PROGRAM ARE YOU:

a) TALKING TO OTHERS ABOUT STOPPING SMOKING ___YES ___NO

b) READING ABOUT STOPPING SMOKING? ___YES ___NO

c) ATTENDING OR PLANNING TO ATTEND ANOTHER STOP SMOKING

PROGRAM? ___YES ___NO

d) MORE AWARE WHEN YOU AND/OR OTHERS ARE SMOKING?
___YES ___NO

12. HAVE YOU STOPPED SMOKING? ___YES ___NO

13. MAY WE CONTACT YOU AGAIN IN APRIL 1985?
___YES ___NO

GOOD LUCK

CARL A. BLASHKO, M.D. JOHN G. PATERSON, ED.D.

APPENDIC C

QUESTIONNAIRE # 3 - EIGHTEEN MONTHS FOLLOW-UP

Phone Interview Date _____

Name _____ Phone Number _____

1. Are you presently smoking? Yes No

2. If so, how many cigarettes per week?

3. Brief history of smoking behaviour since the end of the stop smoking program.

4. Reasons for starting smoking again

5. Do you still want to quit? Yes No

6. Present level of motivation to quit

very high high moderate low nil

7. Additional comments

eg. what was helpful about the program

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